Remarks

Status of Claims

Original claims 1-7 and 9 stand rejected. Original claims 8 and 10 are objected to as being dependent upon rejected base claim 1. New claims 11-16 are added herein. Applicants acknowledge, with thanks, the Examiner's renumbering of original claims 10 and 11 to respective claims 9 and 10. All claims and remarks in this amendment reflect the Examiner's renumbering.

Specification Amendments

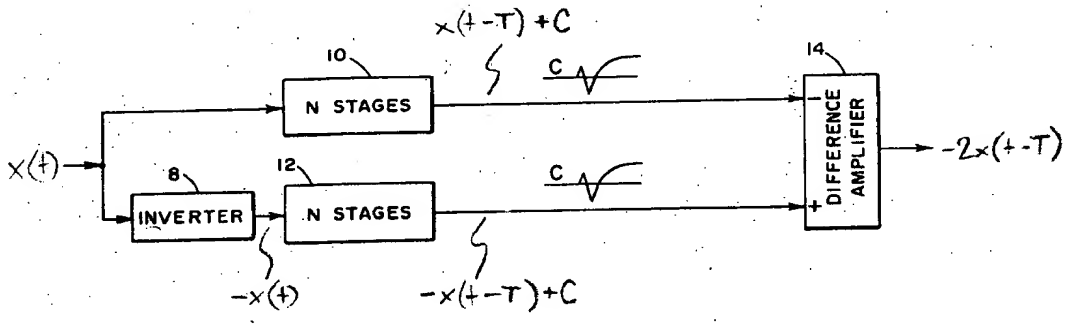
Numerous paragraphs are amended to make clear that the subject matter described in the specification is embodiments of the invention, rather than the invention itself. It is the claims that define the metes and bounds of the invention. Paragraphs **[0026]** and **[0030]** are also voluntarily amended to correct inadvertent element numbering errors. No new matter has been introduced.

Claim Rejections

Claims 1-7 and 9 stand rejected under 35 USC § 103(a) as allegedly being obvious over U.S. Pat. No. 3,906,384 ("Schiffman") in view of Applicants' admitted prior art. The Applicants respectfully disagree and request reconsideration for the reasons set forth herein.

Schiffman discloses a circuit for canceling signed disturbances introduced by a multi-stage signal processor (*i.e.*, an analog shift processor). The most pertinent section of Schiffman is his Figure 3, which depicts a circuit having an input signal supplied to two parallel paths, which are connected to the inputs of a difference amplifier 14. The top path consists of an N-stage analog shift register 10, and the bottom stage consists of an inverter 8 followed by an N-stage analog shift register 12. If the input to the circuit is denoted x(t), then the output of the top path's analog shift register 10 will be a delayed version of x(t) plus additive noise: x(t-T) + C, where C represents the additive noise. Similarly the output of the inverter 8 will be –x(t), and the output of the bottom path's analog shift register 12 will be –x(t-T) + C. Because the noise C is additive and because it is assumed to be essentially the

same in both paths, the difference operation performed by the difference amplifier 14 cancels the noise and produces an output –2x(t-T). *See* Schiffman, col. 3, lines 52-63. The operation of Schiffman's Figure 3 circuit is illustrated in the following replica of Figure 3, in which signal labels have been annotated.



While Schiffman's Figure 3 superficially resembles the Applicants' Figure 1 (or Figure 2), the circuits are quite different in purpose, operation, and construction. Most notably, unlike Schiffman's Figure 3 circuit, which is aimed at nullifying additive disturbances, the Applicants' Figure 1 circuit is designed to introduce a controlled amount of nonlinear distortion, as explained in the specification. Thus, for example, the Applicants' resistor-diode circuits illustrated in Figure 2 are different from Schiffman's analog shift registers.

Not surprisingly, the claims recite limitations that are not present in or obvious from Schiffman's Figure 3 circuit. In particular, claim 1 refers to "control points" included in the first and second input stages, and states that those "control points" are "selected such that of the positive and negative wave portions, one of the portions is processed substantially nonlinearly and the other is processed substantially linearly." About this, the Office Action states the following regarding Schiffman: "The control points are inherently discloses as evident output of the N-stages." Office Action, p. 3, line 5. While the Applicants do not clearly understand what "control points" in Schiffman's elements 10 and 12 (or elsewhere) are being referenced by this passage of the Office Action, it is clear that Schiffman's analog shift registers 10 and 12 do not contain or involve "control points that are selected such that of the positive and negative wave portions, one of the portions is processed substantially nonlinearly and the other is processed substantially linearly," as claim 1 recites. Instead, it is clear from the purpose of Schiffman's circuit that both analog shift registers 10 and 12 are identical. Otherwise, they would not introduce the same type and amount of additive

disturbances into the signal, in which case the Figure 3 circuit would neither nullify the disturbances, nor would the output be a scaled, inverted replica of the input. Moreover, Schiffman does not appear to disclose any nonlinear processing, let alone a nonlinear processing in one path as opposed to a linear processing in the other path of his circuit.

Nothing in the entirety of Schiffman's disclosure, nor in the portion of the Applicants' so-called "admitted prior art," is there any teaching or suggestion of such "control points" or recited nonlinear processing so as to render claim 1 obvious. The Applicant therefore respectfully requests that the rejection of claim 1 be withdrawn.

Because claim 1 is allowable over the prior art of record, it dependent claims 2-10 are also allowable for the same reasons. Moreover, the dependent claims recite limitation that themselves are not taught or suggested by the cited prior art. For example, claim 2 states that "the first and second input stages comprise passive circuits for generating the nonlinear performance curves." While the Office Action states in conclusory fashion that Schiffman's N-stages are indicate of passive circuit," the Office Action includes no support for that statement. The Applicants respectfully disagree that a reader of Schiffman's disclosure would necessarily conclude that an analog shift register is a "passive circuit." The Applicants respectfully request that the Office either provide evidence and rationale for the assertion that Schiffman's N-stage analog shift registers are passive circuits or withdraw the rejection of claim 2.

As another example, claims 3 and 4 refer to "diodes" and "amplifiers having nonlinear performance curves," respectively. The Office Action contends that such limitations are obvious in view of the cited prior art for the alleged motivation of "acquiring the desired optimal performance of reducing distortion among an audio signal." Office Action, p. 4, lines 6-7. However, conventional thinking associates nonlinearities with increased distortion. Schiffman does not suggest otherwise. The Applicants therefore contend that the Office Action has failed to set forth a proper motivation to support a *prima facie* case of obviousness of claims 3 and 4.

New claims 10-16 have been added to claim the invention in method and means-plus-function forms. The new claims recite a combination of linear and nonlinear processing and

are therefore allowable over the cited prior art for the same or similar reasons as explained above in relation to apparatus claim 1.

Conclusion

The Applicant submits that the application is condition for allowance and respectfully requests a Notice of Allowability. If the Examiner has any concerns about the application, or if the undersigned attorney can assist in expediting the allowance of the application, the Examiner is invited to call the undersigned attorney.

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Respectfully submitted,

Red Chip Company Ltd.

By _____

Matthew C. Phillips
Registration No. 43,403

STOEL RIVES LLP
900 SW Fifth Avenue, Suite 2600
Portland, Oregon 97204-1268
Telephone: (503) 224-3380
Facsimile: (503) 220-2480

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